Appendix D-2: Preliminary Design Deliverables

This appendix describes the project deliverables for the preliminary design projects. This guidance is intended to ensure that project sponsors, evaluators, and SRFB staff have the same expectations for grant agreement deliverables.

All restoration projects that include design elements shall follow four standard project development stages: Conceptual design, preliminary design, final design, and the construction phase. The deliverables for all projects are listed in the table below, with the preliminary design deliverables highlighted. The deliverables are described in Appendices D 1-4.

If the sponsor intends to deviate from the guidance in this appendix, the sponsor will need to answer specific questions in the salmon project proposal to be reviewed by the SRFB Review Panel during the application process.

Project Deliverables

Project Type	Conceptual design	Preliminary design report	Permit applications	Design review comments	Final design report and drawings	Technical specification	Construction quantities and costs	Bidding documents	Permits	Cultural resources compliance	Control and tenure documentation	As-built
Conceptual Design	✓											
Preliminary Design	Application	✓	Optional	Optional						***		
Final Design	Application	✓	Optional	✓	✓	✓	✓	✓	Optional	***		
Construction Project **	Application	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

** Design-build projects have an abbreviated set of design requirements prior to construction. See Appendix D-4.

*** Cultural resources compliance may be required if Sponsor is conducting ground disturbing activities during the design phases.

Conceptual Design

The conceptual design phase of the project describes the initial phase of identifying a restoration project. For restoration projects and preliminary and final design projects, the application requirements in the project proposal comprise an adequate conceptual design. The project proposal, described in Section 4 of *Manual 18, Salmon Recovery Grants*, includes questions detailing the project overview, salmon recovery context, proposed design procedures, alternates considered, plan view drawing, cost estimates, schedule, and other technical information.

Preliminary Project Design

SRFB uses the term "preliminary project design" to define the final deliverable in a preliminary design project, or an intermediate deliverable in a final design or restoration project. Preliminary designs are intended to advance project concepts to a detailed understanding and quantification of all the major project elements.

Preliminary designs may traditionally be labeled "30 percent design," "50 percent design," etc. but these numeric labels tend to confuse the process and do not always reflect the design detail of the project. For example, preliminary designs for some straightforward projects, such as culvert replacement on a private driveway, may be considered 80 percent of the final design requirements. Conversely, the preliminary designs for some large-scale, complex projects, such as levee setbacks with tidegate installations, may only be considered 20 percent of the final design requirements. Therefore, we request that project sponsors and consulting engineers use the SRFB definitions for consistency.

Salmon habitat restoration projects require a design team with a balance of knowledge and experience within the fisheries biology, civil engineering, and other technical fields. The person or team completing the preliminary project design is required to include at least one licensed professional engineer. For certain projects, where project design is straightforward and sponsor liability concerns are minimal, a licensed professional engineer may not be required and may be designed by people with applicable experience and technical knowledge without the requirements for a licensed engineer.

A sponsor that will NOT use a licensed professional engineer for the project design will need to answer specific questions in the salmon project proposal to be reviewed by the SRFB Review Panel during the application process.

Preliminary Design Process

While the detailed scope of each project's preliminary design process is unique, in general, the process for developing a preliminary design includes: preparing surveyed site plans; conducting field investigations of hydrologic, geotechnical, and other site conditions; conducting data analysis; preparing drawings and designs; preparing the

design report; and preparing engineering cost estimates. For additional detailed guidance on designing and implementing restoration projects, please refer to Chapters 4 and 5 of the *Stream Habitat Restoration Guidelines* found at wdfw.wa.gov/publications/pub.php?id=00043.

Preliminary Design Deliverables

Preliminary designs must adequately describe all proposed project elements in sufficient detail for permit review and authorization. While the design team may tailor the design process to suit the unique circumstances of each project, the following project deliverables are required for preliminary design projects:

A. Preliminary design report, drawings, and engineering cost estimate

B. Design review comments (optional)

C. Permit applications (optional)

These deliverables must be submitted to your SRFB grants manager at the close of your preliminary design project. More details on the preliminary design deliverables are provided in the following section.

A. Preliminary Design Report, Drawings, and Construction Cost Estimate

A design report is a record of the technical decisions that inform the development of the selected project design, either at the preliminary or the final design stage. By clearly documenting and explaining the design process, the report allows reviewers and other stakeholders to understand the proposed project and the relevant factors that contributed to its design. The preliminary design report must describe all elements of the project and be sufficiently detailed to support project permitting.

While the design team may structure the design report to suit the circumstances of its project, in general, the design reports should include the following elements:

- **Introduction:** An explanation of the purpose of the project and its specific habitat restoration goals and objectives.

- **Existing Conditions:** Characterize and analyze the existing conditions that may be relevant to project design. Typically these conditions include: description of the problem; summary of site, reach and watershed conditions; biological and water quality factors as they relate to the project conditions; site history and constraints that have led to the observed problems and which may present challenges to restoration; and description of identified causes of the problem. This section typically includes historical data; surrounding land uses; landowner and community expectations; survey information

(topographic, geomorphic, and vegetative); sediment sampling; water velocities, depths and flow rates; groundwater or hyporheic flow evaluation ranges; tidal elevation and ranges; maintenance requirements and others. The level and detail of survey and data collection needed is dependent upon project goals, objectives, sales, and the context of the project.

- **Preliminary Design Alternatives:** An identification, description, and evaluation of design alternatives that were considered for achieving the project goals and objectives. Describe each element of the design alternatives. Include a comparison of each of the alternatives discussing project objectives, other evaluation criteria (such as fish benefit, maintenance, sustainability, social acceptance, etc.) and cost, to the extent that cost data is available at this stage of the design process.

- **Preferred Alternative:** A description of a preferred alternative and the rationale for choosing it, citing the relevant factors described above. Include a brief explanation of why the other alternative(s) were not selected.

- **Design Considerations and Preliminary Analyses:** A listing of specific design criteria that defines the intent and expectations for each project element. Design criteria are specific, measurable attributes of project features that clarify the purpose of each project element and articulate how each element will contribute to meeting the overall project's goals and objectives. Include justification and documentation of design methods applied, including assumptions that facilitated the design. Provide design output, including analytical results of all technical and design analyses and how these are translated to project element designs.

- **Permitting and Stakeholder Consultation:** A description of regulatory and/or other public consultation activities that may have been carried out and how the review comments from agencies and other stakeholders were addressed in the preliminary design. This section is optional based on proposed deliverables in the application.

- **Preliminary Design Drawings:** The preparation of preliminary design drawings is a key step to producing a successful habitat restoration project. The preliminary design drawings are required for all design and restoration projects. All preliminary design drawings should be produced in digital format (e.g. AutoCAD), each drawing should be to scale, and it is strongly suggested that the vertical and horizontal scales on the drawings be kept the same.

  For the preferred alternative, minimum drawing requirements include depiction of all elements of the project in sufficient detail to support project permitting, and include at a minimum:

- Existing site plan showing: area/location map; property boundaries; landownership; road, utilities, or other infrastructure as appropriate; scale; north arrow: water bodies and direction of flow; and bank-full width or mean low and high water (marine waters);

- Project site plan view drawing(s) showing proposed actions overlaid on the existing site plan (above). The site plan should include all project elements including installation and removal of fill, wood, rock, culverts, infrastructure, clearing and staging, dewatering, etc.;

- Project profile and cross-section at important project locations showing water surface elevations relevant to the design (e.g. ordinary high water, maximum design flow, tidal elevations, flood elevations, etc.); and

- Structure design details, as needed.

Additional design drawings could be added for complex projects, and/or projects with multiple features or multiple sites.

- **Construction Quantities and Preliminary Construction Cost Estimate.**

- **Appendices:** Include references, analytical and model inputs and outputs, and other supporting documentation.

B. Design Review Comments (Optional at Preliminary Design Phase)

The preliminary design report and drawings must be sent to relevant stakeholders and the SRFB grants manager after in-house review by the sponsor. After a reasonable time for review, the sponsor is encouraged to plan an on-site visit to review the design plans at the project location with stakeholders (e.g., landowners, co-managers, lead entity citizen and technical groups, SRFB grants manager, etc.).

These steps have been very useful for a comprehensive "reality check" for stakeholder review and consideration of all stated project objectives.

The sponsor shall submit to his/her SRFB grants manager a memo (or similar correspondence) that consolidates stakeholder comments and other considerations received during design review. The memo should describe how the comments have (or have not) been incorporated into the design. This memo should be distributed to all entities involved in the review. This step is optional, as for some sponsors this step is more practical during the final design phase.

C. Permit Applications (Optional at Preliminary Design Phase)

The sponsors should provide permit applications, or proof of permit receipt (e.g. copies of permits or permit numbers and issue dates) to the SRFB grants manager or in the PRISM progress report under the Permit tab. This step is optional at the preliminary design phase because, for some sponsors, this step is more practical during the final design phase.